

WHAT IS CLAIMED IS:

1. A compound of formula (I), pharmaceutically acceptable salt thereof:



(I)

wherein V is a 5-membered heteroaryl ring containing up to four heteroatoms selected from O, N and S, optionally substituted by C₁₋₄ alkyl;

A is -CH=CH- or (CH₂)_n;

B is -CH=CH- or (CH₂)_n, where one of the CH₂ groups may be replaced by O, NR⁵, S(O)_m, C(O) or C(O)NR¹²;

n is independently 0, 1, 2 or 3;

m is independently 0, 1 or 2;

R¹ is 3- or 4-pyridyl, 4- or 5-pyrimidinyl or 2-pyrazinyl, any of which may be optionally substituted by one or more substituents selected from halo, C₁₋₄ alkyl, C₁₋₄ fluoroalkyl, C₂₋₄ alkenyl, C₂₋₄ alkynyl, C₃₋₇ cycloalkyl, aryl, OR⁶, CN, NO₂, S(O)_mR⁶, CON(R⁶)₂, N(R⁶)₂, NR¹⁰COR⁶, NR¹⁰SO₂R⁶, SO₂N(R⁶)₂, a 4- to 7-membered heterocyclyl group or a 5- or 6-membered heteroaryl group;

R² is 4- to 7-membered cycloalkyl substituted by R³, C(O)OR³, C(O)R³ or S(O)₂R³, or 4- to 7-membered heterocyclyl, containing one or two nitrogen atoms which is unsubstituted or substituted by C(O)OR⁴, C(O)R³, S(O)₂R³, C(O)NHR⁴, P(O)(OR¹¹)₂ or a 5- or 6-membered nitrogen containing heteroaryl group;

R³ is C₃₋₈ alkyl, C₃₋₈ alkenyl or C₃₋₈ alkynyl, any of which may be optionally substituted with up to 5 fluoro or chloro atoms, and may contain a CH₂ group that may be replaced by O, or C₃₋₇ cycloalkyl, aryl, heterocyclyl, heteroaryl, C₁₋₄ alkylC₃₋₇ cycloalkyl, C₁₋₄ alkylaryl, C₁₋₄ alkylheterocyclyl or C₁₋₄ alkylheteroaryl, any of which may be optionally substituted with one or more substituents selected from halo, C₁₋₄ alkyl, C₁₋₄ fluoroalkyl, OR⁶, CN, CO₂C₁₋₄ alkyl, N(R⁶)₂ and NO₂;

R⁴ is C₂₋₈ alkyl, C₂₋₈ alkenyl or C₂₋₈ alkynyl, any of which may be optionally substituted with up to 5 fluoro or chloro atoms, and may contain a CH₂ group that may be replaced by O, or C₃₋₇ cycloalkyl, aryl, heterocyclyl, heteroaryl, C₁₋₄ alkylC₃₋₇ cycloalkyl, C₁₋₄ alkylaryl, C₁₋₄ alkylheterocyclyl or C₁₋₄ alkylheteroaryl, any of which may be substituted with one or more substituents selected from halo, C₁₋₄ alkyl, C₁₋₄ fluoroalkyl, OR⁶, CN, CO₂C₁₋₄ alkyl, N(R⁶)₂ and NO₂;

R⁵ is hydrogen, C(O)R⁷, S(O)₂R⁸, C₃₋₇ cycloalkyl or C₁₋₄ alkyl optionally substituted by OR⁶, C₃₋₇ cycloalkyl, aryl, heterocyclyl or heteroaryl, wherein the cyclic groups may be substituted with one or more substituents selected from halo, C₁₋₂ alkyl, C₁₋₂ fluoroalkyl, OR⁶, CN, N(R⁶)₂ and NO₂;

R⁶ are independently hydrogen C₁₋₄ alkyl, C₃₋₇ cycloalkyl, aryl, heterocyclyl or heteroaryl, wherein the cyclic groups may be substituted with one or more substituents selected from halo, C₁₋₄ alkyl, C₁₋₄ fluoroalkyl, OR⁹, CN, SO₂CH₃, N(R¹⁰)₂ and NO₂; or a group N(R¹⁰)₂ may form a 4- to 7-membered heterocyclic ring optionally containing a further heteroatom selected from O and NR¹⁰;

R⁷ is hydrogen, C₁₋₄ alkyl, OR⁶, N(R⁶)₂, aryl or heteroaryl;

R^8 is C_{1-4} alkyl, C_{1-4} fluoroalkyl, aryl or heteroaryl;

R^9 is hydrogen, C_{1-2} alkyl or C_{1-2} fluoroalkyl;

R^{10} is hydrogen or C_{1-4} alkyl;

R^{11} is phenyl; and

R^{12} is hydrogen, C_{1-4} alkyl or C_{3-7} cycloalkyl;

provided that the compound is not:

- a) 4-(5-piperidin-4-yl-[1,2,4]oxadiazol-3-yl)pyridine;
- b) 4-(3-pyridin-4-yl-[1,2,4]oxadiazol-5-yl)piperidine-1-carboxylic acid t -butyl ester;
- c) 4-[5-(4-butylcyclohexyl)-[1,2,4]oxadiazol-3-yl]pyridine;
- d) 3-[5-(4-butylcyclohexyl)-[1,2,4]oxadiazol-3-yl]pyridine; or
- e) 3-[5-(4-propylcyclohexyl)-[1,2,4]oxadiazol-3-yl]pyridine.

2. A compound according to claim 1, or a pharmaceutically acceptable salt thereof, wherein V represents a 5-membered heteroaryl ring containing up to three heteroatoms selected from O, N and S of the formula:



wherein W , X and Y represent the positions of the heteroatom(s) or otherwise represent CH.

3. A compound according to claim 2, or a pharmaceutically acceptable salt thereof, wherein two of W , X and Y are N, and the other is O.

4. A compound according to claim 2 or 3, or a pharmaceutically acceptable salt thereof, wherein W is N.

5. A compound according to any one of the preceding claims, or a pharmaceutically acceptable salt thereof, wherein the n groups of A and B do not both represent 0.

6. A compound according to any one of the preceding claims, or a pharmaceutically acceptable salt thereof, wherein in A, n is 0, 1 or 2.

7. A compound according to any one of the preceding claims, or a pharmaceutically acceptable salt thereof, wherein in B, n is 2 or 3.

8. A compound according to any one of the preceding claims, or a pharmaceutically acceptable salt thereof, wherein R^1 is 4-pyridyl optionally substituted by 1 or 2 halo, C_{1-4} alkyl, C_{1-4} fluoroalkyl, C_{2-4} alkenyl, C_{2-4} alkynyl, C_{3-7} cycloalkyl, aryl, OR^6 , CN , NO_2 , $S(O)_mR^6$, $CON(R^6)_2$, $N(R^6)_2$, $NR^{10}COR^6$, $NR^{10}SO_2R^6$, $SO_2N(R^6)_2$, 4- to 7-membered heterocyclol or 5- or 6-membered heteroaryl groups.

9. A compound according to claim 8, or a pharmaceutically acceptable salt thereof; wherein R^1 is 4-pyridyl optionally substituted by halo, C_{1-4} alkyl C_{1-4} alkoxy or CN .

10. A compound according to any one of the preceding claims, or a pharmaceutically acceptable salt thereof, wherein R² is a 4- to 7-membered cycloalkyl substituted by R³, or 4- to 7-membered heterocyclyl containing one nitrogen atom which is substituted by C(O)OR⁴.

11. A compound according to any one of the preceding claims, or a pharmaceutically acceptable salt thereof, wherein R³ is C₃₋₈ alkyl which may contain a CH₂ group that may be replaced by O, or C₃₋₇ cycloalkyl.

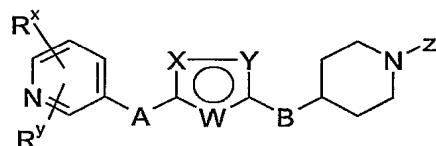
12. A compound according to any one of the preceding claims, or a pharmaceutically acceptable salt thereof, wherein R⁴ is C₂₋₈ alkyl, C₂₋₈ alkenyl or C₂₋₈ alkynyl, any of which may be optionally substituted with up to 5 fluoro or chloro atoms, and may contain a CH₂ group that may be replaced by O, or C₃₋₇ cycloalkyl, aryl, 5- to 6-membered heteroaryl containing one or two nitrogen atoms, C₁₋₄ alkylC₃₋₇ cycloalkyl or C₁₋₄ alkylaryl, any of which may be substituted with one or more substituents selected from halo, C₁₋₄ alkyl, C₁₋₄ fluoroalkyl, OR⁶ and CO₂C₁₋₄ alkyl.

13. A compound according to claim 12, or a pharmaceutically acceptable salt thereof, wherein R⁴ is C₃₋₆ alkyl optionally substituted with up to 5 fluoro or chloro atoms, and which may contain a CH₂ group that may be replaced by O, or C₃₋₇ cycloalkyl.

14. A compound according to any one of the preceding claims, or a pharmaceutically acceptable salt thereof, wherein R⁵ is C₁₋₄ alkyl.

15. A compound of formula (I) as defined in any one of Examples 1, 3 to 8, 10 to 13, 16 to 50, or 52 to 149, or a pharmaceutically acceptable salt thereof.

16. A compound according to claim 1 having the formula (Id), or a pharmaceutically acceptable salt thereof:



(Id)

where two of W, X and Y are N, and the other is O;

A is -CH=CH- or (CH₂)_n;

B is -CH=CH- or (CH₂)_n, where one of the CH₂ groups may be replaced by O, NR⁵, S(O)_m or C(O);

n is independently 0, 1, 2 or 3, provided that not both n are 0;

m is independently 0, 1 or 2;

R^x and R^y are independently selected from hydrogen, halo, C₁₋₄ alkyl, C₁₋₄ fluoroalkyl, C₂₋₄ alkenyl, C₂₋₄ alkynyl, C₃₋₇ cycloalkyl, aryl, OR⁶, CN, NO₂, S(O)_mR⁶, CON(R⁶)₂, N(R⁶)₂, NR¹⁰COR⁶, NR¹⁰SO₂R⁶, SO₂N(R⁶)₂, a 4- to 7-membered heterocyclyl group and a 5- or 6-membered heteroaryl group;

Z is C(O)OR⁴, C(O)R³, S(O)₂R³, C(O)NHR⁴ or a 5- or 6-membered nitrogen containing heteroaryl group;

R³ is C₃₋₈ alkyl, C₃₋₈ alkenyl or C₃₋₈ alkynyl, any of which may be optionally substituted with up to 5 fluoro or chloro atoms, and may contain a CH₂ group that may be replaced by O, or C₃₋₇ cycloalkyl, aryl, heterocyclyl, heteroaryl, C₁₋₄ alkylC₃₋₇ cycloalkyl, C₁₋₄ alkylaryl, C₁₋₄ alkylheterocyclyl or C₁₋₄ alkylheteroaryl, any of which may be optionally substituted with one or more substituents selected from halo, C₁₋₄ alkyl, C₁₋₄ fluoroalkyl, OR⁶, CN, CO₂C₁₋₄ alkyl, N(R⁶)₂ and NO₂;

R⁴ is C₂₋₈ alkyl, C₂₋₈ alkenyl or C₂₋₈ alkynyl, any of which may be optionally substituted with up to 5 fluoro or chloro atoms, and may contain a CH₂ group that may be replaced by O, or C₃₋₇ cycloalkyl, aryl, heterocyclyl, heteroaryl, C₁₋₄ alkylC₃₋₇ cycloalkyl, C₁₋₄ alkylaryl, C₁₋₄ alkylheterocyclyl or C₁₋₄ alkylheteroaryl, any of which may be substituted with one or more substituents selected from halo, C₁₋₄ alkyl, C₁₋₄ fluoroalkyl, OR⁶, CN, CO₂C₁₋₄ alkyl, N(R⁶)₂ and NO₂;

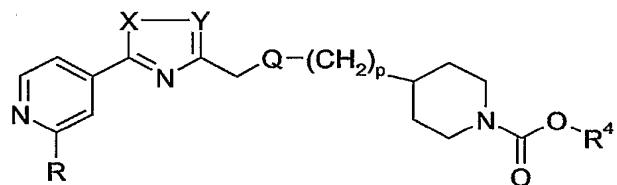
R⁵ is hydrogen or C₁₋₄ alkyl;

R⁶ are independently hydrogen, or C₁₋₄ alkyl, C₃₋₇ cycloalkyl, aryl, heterocyclyl or heteroaryl, wherein the cyclic groups may be substituted with one or more substituents selected from halo, C₁₋₄ alkyl, C₁₋₄ fluoroalkyl, OR⁹, CN, SO₂CH₃, N(R¹⁰)₂ and NO₂; or a group N(R¹⁰)₂ may form a 4- to 7-membered heterocyclic ring optionally containing a further heteroatom selected from O and NR¹⁰;

R⁹ is hydrogen, C₁₋₂ alkyl or C₁₋₂ fluoroalkyl; and

R¹⁰ is hydrogen or C₁₋₄ alkyl.

17. A compound according to claim 1 having the formula (Ie), or a pharmaceutically acceptable salt thereof:



(Ie)

wherein one of X and Y is N, and the other is O;

Q is O, NR⁵ or CH₂;

R is hydrogen, halo, C₁₋₄ alkyl, C₁₋₄ fluoroalkyl, C₂₋₄ alkenyl, C₂₋₄ alkynyl, C₃₋₇ cycloalkyl, aryl, OR⁶, CN, NO₂, S(O)_mR⁶, CON(R⁶)₂, N(R⁶)₂, NR¹⁰COR⁶, NR¹⁰SO₂R⁶, SO₂N(R⁶)₂, a 4- to 7-membered heterocyclyl group or a 5- or 6-membered heteroaryl group;

R⁴ is C₂₋₈ alkyl, C₂₋₈ alkenyl or C₂₋₈ alkynyl, any of which may be optionally substituted with up to 5 fluoro or chloro atoms, and contain a CH₂ group that may be replaced by O, or C₃₋₇ cycloalkyl, aryl, heterocyclyl, heteroaryl, C₁₋₄ alkylC₃₋₇ cycloalkyl, C₁₋₄ alkylaryl, C₁₋₄ alkylheterocyclyl or C₁₋₄ alkylheteroaryl, any of which may be substituted with one or more substituents selected from halo, C₁₋₄ alkyl, C₁₋₄ fluoroalkyl, OR⁶, CN, CO₂C₁₋₄ alkyl, N(R⁶)₂ and NO₂;

R⁵ is C₁₋₄ alkyl;

R^6 are independently hydrogen, or C_{1-4} alkyl, C_{3-7} cycloalkyl, aryl, heterocyclyl or heteroaryl, wherein the cyclic groups may be substituted with one or more substituents selected from halo, C_{1-4} alkyl, C_{1-4} fluoroalkyl, OR^9 , CN , SO_2CH_3 , $N(R^{10})_2$ and NO_2 ; or a group $N(R^{10})_2$ may form a 4- to 7-membered heterocyclic ring optionally containing a further heteroatom selected from O and NR^{10} ;

R^9 is hydrogen, C_{1-2} alkyl or C_{1-2} fluoroalkyl;

R^{10} is hydrogen or C_{1-4} alkyl; and

p is 0 or 1.

18. A pharmaceutical composition comprising a compound according to any one of claims 1 to 17, including the compounds of provisos c) to e), or a pharmaceutically acceptable salt thereof; and a pharmaceutically acceptable carrier.

19. A method for the treatment of a disease or condition in which GPR116 plays a role comprising a step of administering to a subject in need thereof an effective amount of a compound according to any one of claims 1 to 17, including the compounds of provisos a) to e), or a pharmaceutically acceptable salt thereof.

20. A method for the regulation of satiety comprising a step of administering to a subject in need thereof an effective amount of a compound according to any one of claims 1 to 17, including the compounds of provisos a) to e), or a pharmaceutically acceptable salt thereof.

21. A method for the treatment of obesity comprising a step of administering to a subject in need thereof an effective amount of a compound according to any one of claims 1 to 17, including the compounds of provisos a) to e), or a pharmaceutically acceptable salt thereof.

22. A method for the treatment of diabetes comprising a step of administering to a subject in need thereof an effective amount of a compound according to any one of claims 1 to 17, including the compounds of provisos a) to e), or a pharmaceutically acceptable salt thereof.